SG1M Train Sounds

This Chip-on-Board PCB contains four train sounds. The cmos VLSI single chip synthesizes audio output. Sounds are edge triggered. It requires a power supply 2.4V to 6V. Automatic power down. Standby current less than 1 uA.

The design will tolerate a wide range of component values. The ones given here certainly work but you can change them to achieve the exact sounds you want.

There are four train-related sounds:

- Switch K1, four train sounds in sequence
- Switch K2, whistle blowing
- Switch K3, train or level crossing bell, ding/ding
- Switch K4, clackety/clack

Construction. A mother board is supplied with the kit to make assembly as easy as possible. Solder the COB PCB into the slot at each of the 14 pins. Be careful you do not short out two adjacent pins with solder. The oscillator resistor sits up vertically on the board. Use your own hook-up wire to attach the switches, speaker and power supply wires. Each of the 4 sounds is made by connecting the pads connected to pins 4 5 6 & 7 resp. to the positive rail.

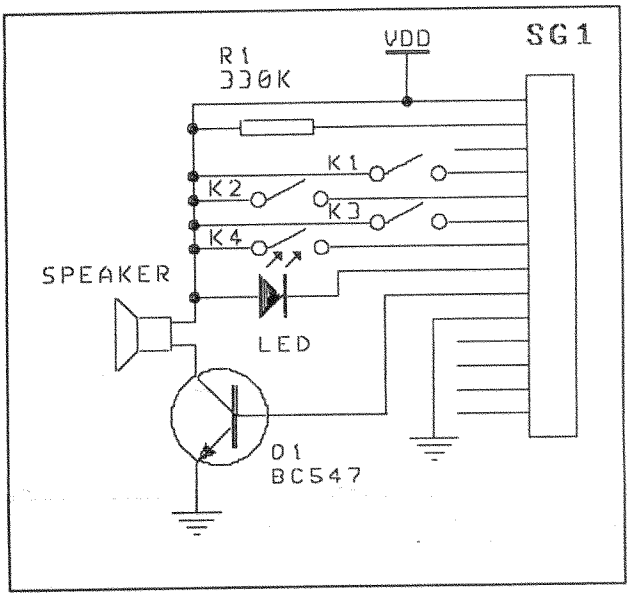
You may adjust the tone of all the sounds by changing the value of the oscillator resistor R1. Note there is no R2 resistor used. Leave that position vacant if it there is one shown the board.

The LED shown in the schematic attached to pin 8 has not been included on the mother board. If you do connect the LED as shown then the brightness of the LED changes with the volume level of the sound output.

PINOUT

Bonded on a 29mm x 16mm single sided PCB. Not all die pads are brought out.

PCB Position	Pin Function
1	VDD, Positive +3V Power Supply
2	Oscillator Resistor
3	Not connected, NC
4	Trigger 1 active high
5	Trigger 2 active high
6	Trigger 3 active high
7	Trigger 4 active high
8	Status output, LED
9	Audio Out
10	VSS Ground
11 12 13 14	Not Connected, NC



COMPONENTS

8 ohm speaker	1
3V battery snap	1
Push-on switches	4
330K resistor, R1	1
BC547 transistor	1
SG1 Chip on Board PCB	1
SG1 mother board	1

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